

Case 8427

A placental site trophoblastic tumour

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Section: Genital (Female) Imaging

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Patient: 33 year(s), female

Clinical History

A 33-year-old woman with amenorrhoea since her last pregnancy 13 months earlier.

Imaging Findings

A 33-year-old woman (gravida 2, para 2) presented with 13-month amenorrhoea since her last pregnancy. The hysterosalpyngography showed a regular filling defect in the uterine fundus, interpreted as a leiomyoma (Fig. 1). Transvaginal ultrasound (TVUS) revealed a 3 cm submucous tumour in the uterine fundus (Fig. 2). The hysteroscopy revealed a soft, necrotic-looking mass, occupying most of the posterior endometrial cavity (Fig. 3). Multiple biopsies were undertaken. Histology revealed intermediate trophoblastic tissue with myometrial invasion, raising the possibility of a placental site trophoblastic tumour (Fig. 4). The serum HCG level was 7, 8 UI/L ($N < 5$). A magnetic resonance (MR) examination was performed. A heterogeneous tumour, submucous in location, in the right fundal region, was detected, superficially invading the myometrium 5 mm. On contrast-enhanced T1-weighted images there was little central enhancement of the mass relative to the surrounding myometrium (Figs. 5 a, b, c). On T2-weighted MR images the mass had peripheral low signal with central high signal intensity relative to normal myometrium. (Figs. 5 d, e). The patient underwent hysteroscopic resection of the mass (Figs. 6 a, b). Histological examination showed diffuse invasion of the myometrium, so the patient was submitted to total abdominal hysterectomy and bilateral pelvic lymphadenectomy. The surgical specimen (Figs. 7 a, b) had no evidence of macroscopic tumour. Histology revealed a small residual area of placental site tumour 5 x 3 mm involving the superficial myometrium. No deep myometrial, vascular or lymph node invasion was documented.

Discussion

Placental site trophoblastic tumour (PSTT) is the rarest variant of Gestational trophoblastic disease (GTD).

GTD always derives from an abnormal fertilisation and, although these tumours represent less than 1% of gynaecological malignancies, it is important to know their natural history and approach, not only because they can threaten the lives of fertile women, but also for their high curability if treated on time.

GTD can be defined as a group of gestational and neoplastic conditions derived from the trophoblast, and is usually subdivided, according to the International Classification of Diseases (ICD), in molar gestations [complete hydatidiform mole (CHM), partial hydatidiform mole (PHM) and invasive mole (IM)] and trophoblastic tumours [choriocarcinoma, placental site trophoblastic tumour (PSTT) and epithelioid trophoblastic tumour]. The trophoblast begins as the outer covering of the early blastocyst and provides the nutrition path between the maternal endometrium and the developing embryo. It will become the placental functional unit. It is formed by three components: cytotrophoblast, syncytiotrophoblast and the intermediate trophoblast. A common characteristic of all GTD is the abnormal proliferation of trophoblast, but different components predominate in different tumours.

PSTT can develop after a full-term delivery, a non-molar abortion or a molar gestation. Time to presentation varies between 1 week and 14 years, usually through abnormal vaginal bleeding. Their biological behaviour is variable, ranging from benign lesions confined to the uterus, to highly aggressive malignant disease with systemic metastases. The main negative prognostic variables are time to presentation from last known pregnancy and mitotic index. Relative to other forms of GTD, in PSTT the levels of serum HCG are usually lower (due to lack of syncytiotrophoblast proliferation).

The radiologic manifestations vary, including solid and cystic lesions, with or without a central component, that usually invade the myometrial wall. Because of this, PSTT can have an appearance similar to choriocarcinoma or invasive mole. On MR, the myometrial mass is isointense to the normal myometrium on T1-weighted images and isointense to slightly hyperintense on T2-weighted images. Endometrial masses are heterogeneous. The junctional zone is disrupted. In the majority of the cases there are cystic spaces and vascular structures.

The treatment is surgical (total abdominal hysterectomy with or without bilateral oophorectomy) due to relative resistance to chemotherapy. Accurate localisation by MR may allow hysterotomy to be performed, preserving the uterus for future pregnancies. Unfortunately, 30% of the patients with PSTT present with metastases at the time of diagnosis.

Final Diagnosis

Placental site trophoblastic tumor.

Figures

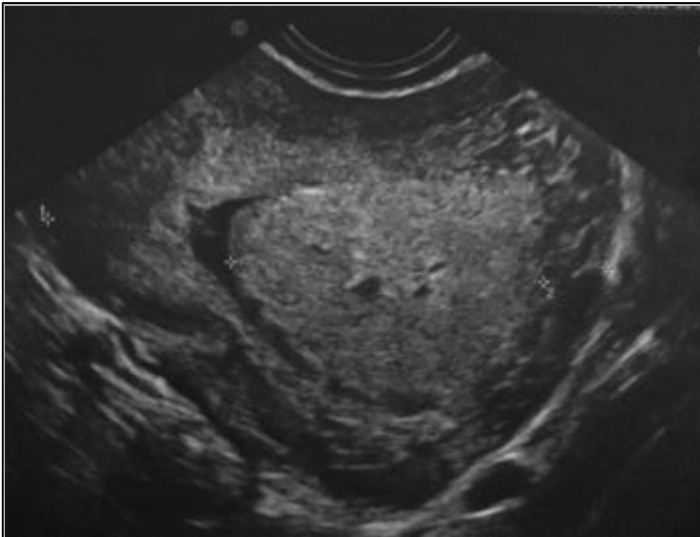
Figure 1 Hysterosalpyngography





Filling defect with a regular contour in the uterine fundus.

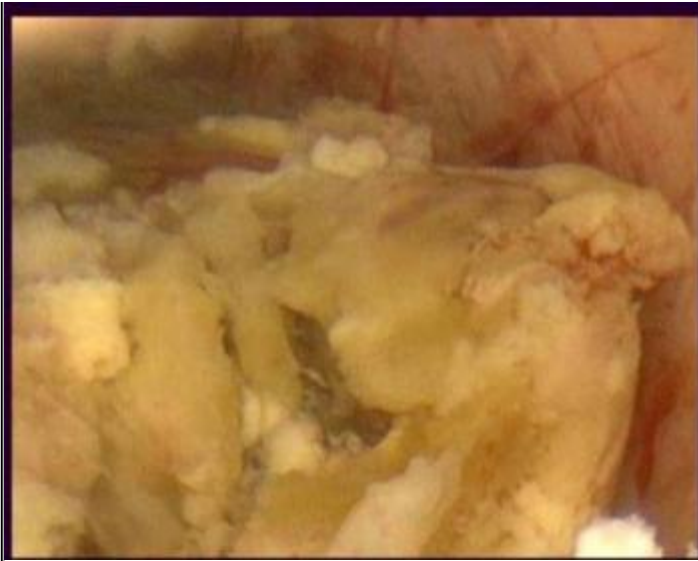
Figure 2 Transvaginal ultrasound (TVUS)



Submucous fundal tumour isoechogenic to myometrium. We can detect a small amount of fluid in the uterine cavity.

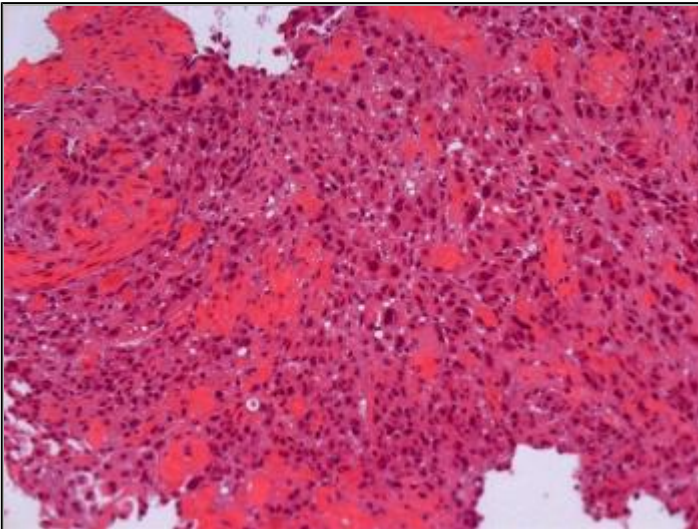
Figure 3 Hysteroscopy





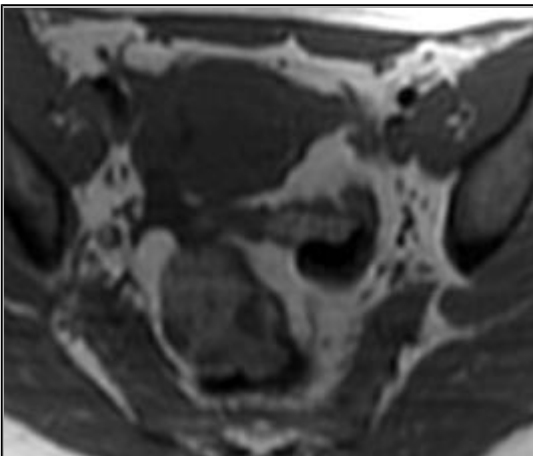
Soft, necrotic mass occupying most of the posterior uterine wall.

Figure 4 Histology of the biopsies done during hysteroscopy

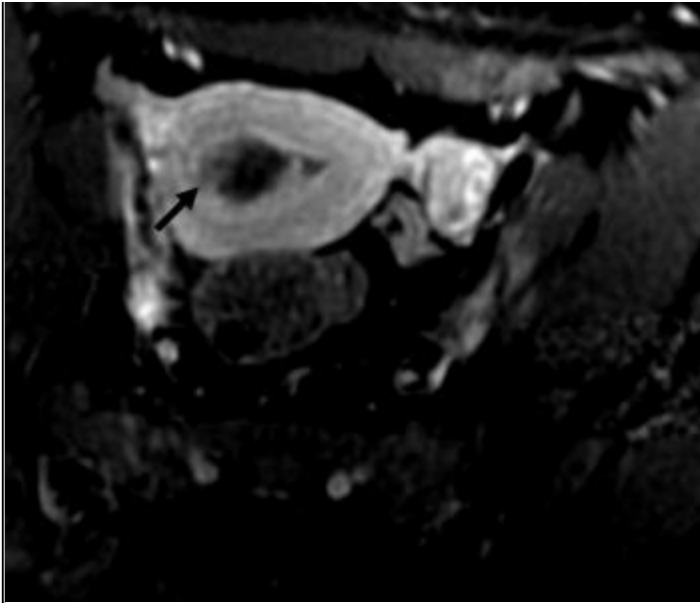


Intermediate trophoblastic tissue with myometrial invasion.

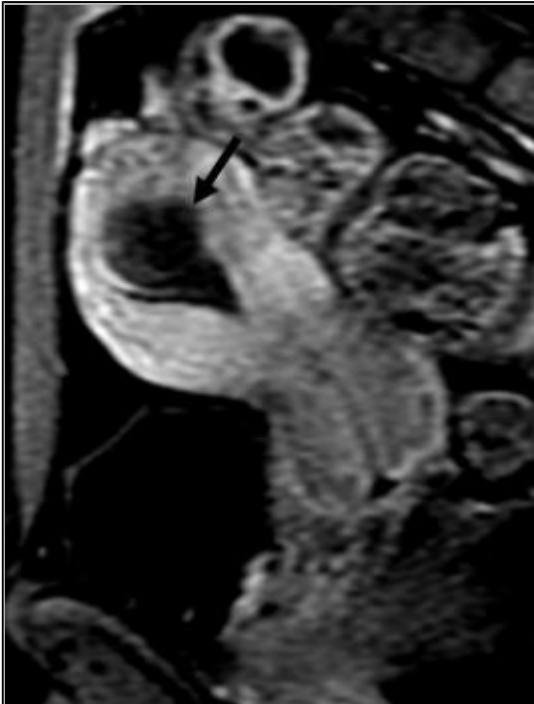
Figure 5 MR examination



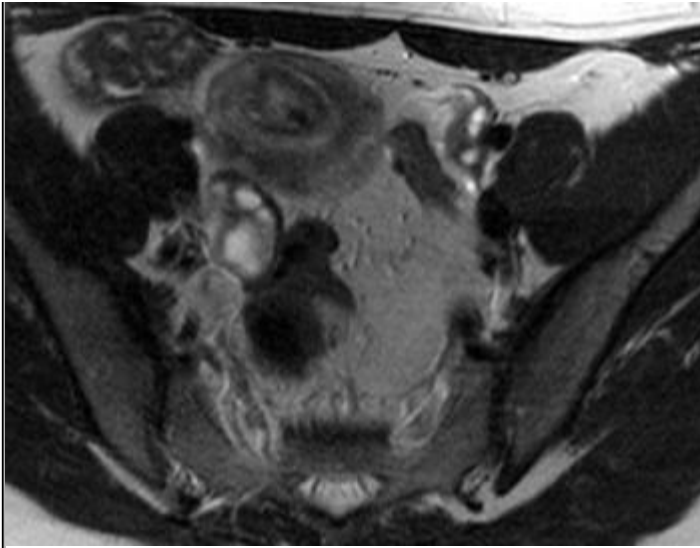
Axial T1. On T1-weighted images the mass is isointense to normal myometrium.



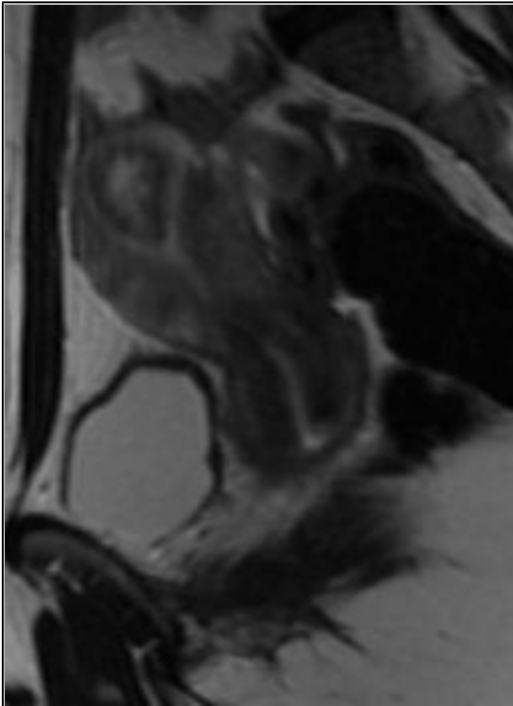
Axial contrast-enhanced fat-sat T1. On contrast enhanced T1-weighted images there was sparse central enhancement of the mass relative to the surrounding myometrium. The tumour superficially invaded the myometrium (arrow).



Sagittal contrast-enhanced fat-sat T1. On contrast enhanced T1-weighted images there was sparse central enhancement of the mass relative to the surrounding myometrium. The tumour superficially invaded the myometrium (arrow).



Axial T2. On T2-weighted images the mass has peripheral low signal with a central high signal intensity area relative to normal myometrium.



Sagittal T2. On T2-weighted images the mass has peripheral low signal with a central high signal intensity area relative to normal myometrium.

Figure 6 Hysteroscopic resection



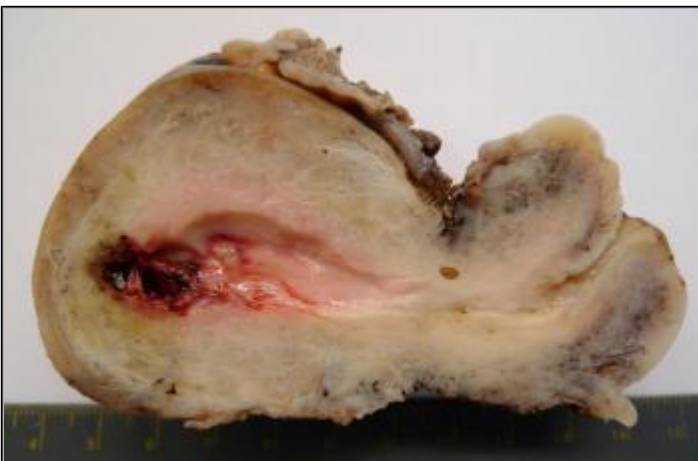


Hysteroscopic incomplete resection.

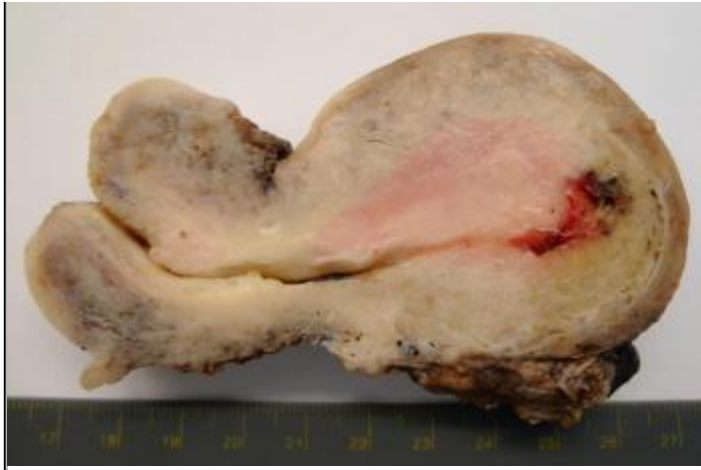


Hysteroscopic incomplete resection.

Figure 7 Surgical specimen of hysterectomy



We can see an haemorrhagic area in the uterine fundus related to previous resection. There is no evidence of macroscopic tumour.



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MeSH

Gestational Trophoblastic Neoplasms [C04.850.908.416]

A group of interrelated trophoblastic diseases arising from pregnancy. They are commonly associated with hyperplasia of trophoblasts (TROPHOBLAST) and markedly elevated human CHORIONIC GONADOTROPIN. They include HYDATIDIFORM MOLE, invasive mole (HYDATIDIFORM MOLE, INVASIVE), placental-site trophoblastic tumor (TROPHOBLASTIC TUMOR, PLACENTAL SITE), and CHORIOCARCINOMA. These neoplasms have varying propensities for invasion and spread.

Trophoblastic Tumor, Placental Site [C04.850.908.416.186.875]

An uncommon variant of CHORIOCARCINOMA. It is composed almost entirely of mononuclear cytotrophoblasts (TROPHOBLASTS). Because its secretion of hCG (CHORIONIC GONADOTROPIN) is low, a large tumor may develop before the hCG can be detected.

References

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Citation

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